KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

MODULAR TBUS-3
Table Connection Bus

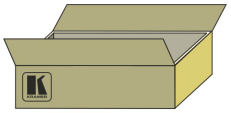
P/N: 2900-300062 Rev 1

TBUS-3 Quick Start Guide

This page guides you through a basic installation and first-time use of your **TBUS-3**.
For more detailed information, see the **TBUS-3** user manual and modular instruction sheets.
You can download the latest manual at http://www.kramerelectronics.com.

Step 1: Check what's in the box

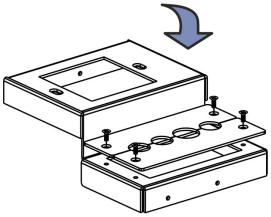
- **TBUS-3** Table Connection Bus Enclosure
- 2 table clamps
- 6 self locking ties
- 1 Cut out Template
- 1 Quick start guide
- 1 User Manual



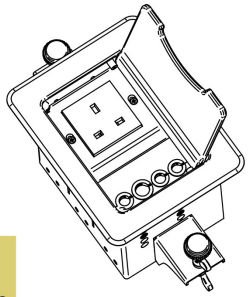
Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.

Step 2: Prepare the TBUS-3 for mounting

Assemble the Inner Frame and install the power socket (if required).



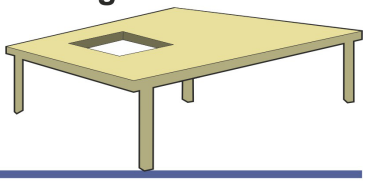
Mount the Inner Frame into the **TBUS-3** enclosure.



Adjust the height of the Inner Frame.

Step 3: Prepare the table for mounting

Cut out an opening in the table using the cut out template.

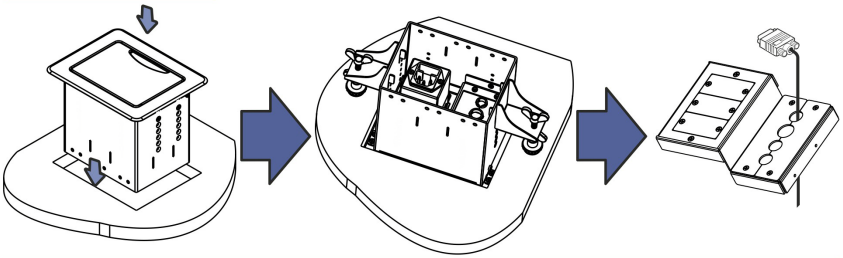


Step 4: Install the TBUS-3 to the table

Insert the Unit through the table opening.

Secure the unit to the table.

Connect the cables.



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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers, GROUP 2: Switchers and Matrix Switchers, GROUP 3: Control Systems, GROUP 4: Format/Standards Converters, GROUP 5: Range Extenders and Repeaters, GROUP 6: Specialty AV Products, GROUP 7: Scan Converters and Scalers, GROUP 8: Cables and Connectors, GROUP 9: Room Connectivity, GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Thank you for purchasing the Kramer **TBUS-3**, which is ideal for boardrooms, conference and training rooms!

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance high-resolution cables

Go to http://www.kramerelectronics.com to check for up-to-date user manuals, a complete list of Kramer wall plates and module connectors, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **TBUS-3** away from moisture, excessive sunlight and dust

2.2 Glossary

Inner frame	The inner frame fits into the TBUS enclosure
Legrand® socket	For use with Legrand's white Mosaic™ series only
Universal socket	The Universal socket fits almost all power cords, worldwide
Insert	The insert is fitted in the inner frame. Go to our Web site to check for a variety of single and dual sized inserts

3 Overview

The Kramer **TBUS-3** is a high-quality, anodized aluminum, table-mounted connection bus for boardrooms and conference rooms. Its attractive enclosure is designed to provide maximum connectivity in the smallest possible footprint. The unit is sturdy, cost-effective, and easy to install.

The **TBUS-3** features:

- A modular design, letting you tailor the **TBUS-3** according to your requirements
- A brushed aluminum lid with a special opening for cable pass-through, available in black and brushed clear (note, that other customized colors can also be ordered)
- An inner frame that can be set to one of six possible height adjustments. Note, that the inner frame is ordered separately
- Power socket openings that are suitable for any of the following power sockets: for the USA, Germany (the Europlug), Belgium-France, Italy, Australia, “Universal” for use anywhere (see compatibility restrictions in Section 7), or Legrand type power sockets (for use with Legrand’s white Mosaic™ series only)

  Order the power sockets separately from Kramer Electronics

TBUS-3 is height-adjustable and the cover opens and closes manually, keeping the cables and the connectors out of sight when not used.

Figure 1: TBUS-3 Inside a Table

Do not place heavy objects on top of the **TBUS-3**.

4 Your TBUS-3 Enclosure

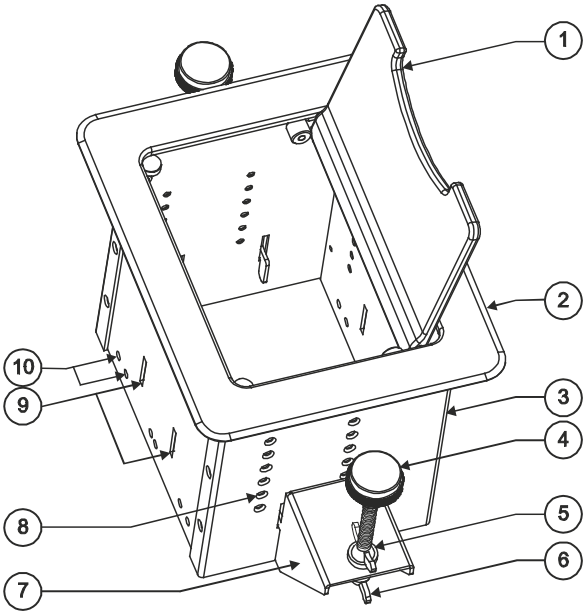


Figure 2: TBUS-3 Enclosure Top View

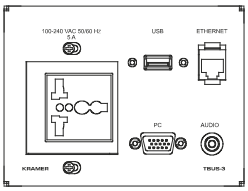
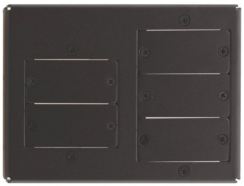
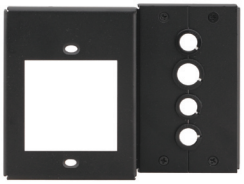
#	Feature		Function
1	Black/Brushed Clear Textured Lid		Includes an opening for cable pass-through; covers the inner frame, leaving the table surface neat and tidy
2	Outer Rim		Fits over the table surface. A protective rubber guard protects the outer rim during shipping. Remove it before installing the unit
3	Enclosure		Inserted into the table cut out
4	Table Clamping Set	Rubber Protectors	Protect the table surface when mounting the unit and ensure soft tightening to the table underside (one on each side)
5		Locking Butterfly Screws	Tighten to lock the mounting butterfly screw (one on each side)
6		Mounting Butterfly Screws	Tighten to secure the unit to the table surface (one on each side)
7		Mounting Brackets (2 units)	Fit in the bracket slits after inserting the enclosure into the table – to secure the unit to the table surface (one on each side)
8	Height Adjustment Screw holes		The screw holes on each side panel are used for adjusting the height of the inner frame (four height adjustment screws are included)
9	Bracket Slits		Located on the front and rear panels, and on both sides of the unit. For attaching the two mounting brackets on opposite sides
10	Tie Holes		Insert the self-locking tie through the holes to fix the pass-through cables to the inside walls of the unit (6 pairs of holes, 3 for the front panel and 3 for the rear panel)

4.1 TBUS-3 Optional Inserts

You can install any wall plate devices as well as any of the single or dual inserts—see our Web site for details.

4.2 TBUS-3 Optional Inner Frames

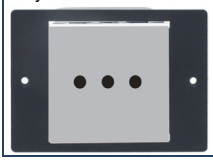
The following inner frames can be installed in the **TBUS-3** enclosure:

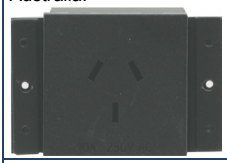
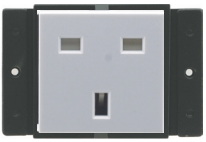
Inner Frames for TBUS-3	Specifications (define what you can include in this inner frame):
	**TBUS-3/IF/1XPS (P/N: 80-002999)** 1 power socket 1 USB connector 1 VGA 15-pin HD connector 1 RJ-45 Ethernet connector 1 3.5mm mini jack AUDIO connector
	**TBUS-3/IF/INSERTS (P/N: 80-003099)** 5 blank inserts Note, that this inner frame cannot include a power socket
	**TBUS-3/IF/1XPS + CABLES (P/N: 80-003199)** 1 power socket 4-cable pass-through insert
	TBUS-3/IF/INSERTS + CABLES (P/N: 80-003299) 4-cable pass-through insert 3 blank inserts Note, that this inner frame cannot include a power socket

Custom made inner frames can be designed if required.
Contact Kramer Electronics for more details.

4.3 Power Socket Options

A choice of one or more power sockets per inner frame is available in several versions, including power sockets for the USA, Germany (the Europlug), Belgium-France, Italy, and Australia. A “Universal” socket for general use is also available (see the compatibility restrictions in the table below), as well as Legrand® manufactured sockets (the Mosaic™ series only, which comes in white) that are suitable for various countries.

Single Power Socket Assemblies:	Power Specs
Universal: 	**TBUS/PS/UNIV (80-000899)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet
Fully compatible with power plugs in the UK, India, Italy and Denmark, as well as with the 2-prong Europlug. **Partially compatible** (if the polarity is reversed) with plugs in China, Switzerland, Israel and the USA. The universal socket does not supply grounding to plugs in Central Europe and France (you should order country specific sockets instead). **Not compatible** with South African plugs.	
USA: 	**TBUS/PS/US (80-000999)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet
Germany and EU: 	**TBUS/PS/DE (80-001299)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet
Belgium and France: 	**TBUS/PS/FR (80-001399)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet
Italy: 	**TBUS/PS/ITALY (80-001499)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet

Single Power Socket Assemblies:	Power Specs
Australia: 	**TBUS/PS/AUS (80-001599)** 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet
Legrand manufactured sockets for various countries: 	**TBUS/PS/LEGRAND (80-001799)** For example, the Legrand assembly with a UK power socket 100-240V AC, 50/60Hz, 5A Maximum 5A per power outlet

4.4 Power Cord Options

You can order any of the following power cords to use with the TBUS:

Power Cord Type	Description	P/N
110V (North America)	AC-POWER-CORD-6ft/110V	91-000099
125V (Japan)	POWER-CORD-JAPAN-6ft/125V	91-000699
220V (Europe) Right Angle	AC-POWER-CORD-RA/6ft/220V	91-000199
220V (Israel)	AC-POWER-CORD-ISRAEL-6ft/220V	91-000999
250V (UK)	AC-POWER-CORD-6ft(UK)/250V	91-000299
250V (India) Right Angle	AC-POWER-CORD-INDIA-R/A-6ft/250V	91-001099
250V/10A (China) Right Angle	AC-POWER-CORD-CHINA-R/A10A-6ft/250V	91-001199
250V/10A (South Africa)	AC-POWER-CORD-SAA-10A-6ft/250V	91-001299

5 Installing the TBUS-3

To install the **TBUS-3** perform the following steps:

1. Assemble the inner frame (see Section 5.1).
2. Install the inner frame (see Section 5.2).
3. Cut an opening in the table (see Section 5.3).
4. Insert the unit through the opening and secure to the table (see Section 5.4).
5. Connect the cables via the 4-cable pass-through insert (see Section 5.5).
6. Connect the cables via a pass through insert (see Section 5.6)
7. Connect the cables (see Section 5.7).
8. Adjust the height of the inner frame (see Section 5.8).

5.1 Assembling the Inner Frame

The modules mounted on the inner frame can include single inserts and/or dual inserts as well as a power socket (in some models). This section describes how to assemble these modules.

Each module kit comes with detailed assembly instructions.

5.1.1 Mounting the Inserts

You can rearrange or remove any of the plates mounted on the inner frame and replace them with Kramer passive wall plates or connector modules for interfacing A/V type signals.

To mount a Kramer insert or connector module:

1. Unscrew the two screws that fasten the blank plate to the inner frame and remove the blank plate.

2. Place the required Kramer insert over the opening, insert the two screws to fix the Kramer insert in place, and tighten them.

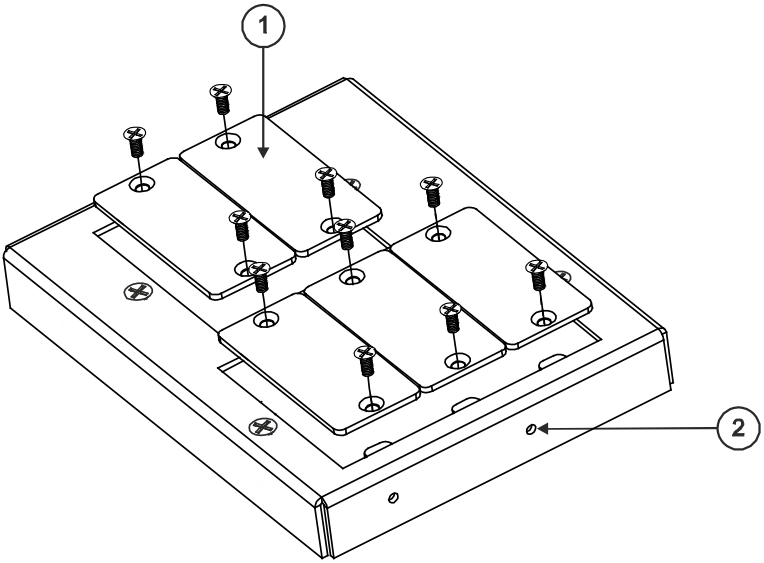


Figure 3: TBUS-3 Inner Frame (P/N: 80-003099)

#	Feature	Function
1	Blank Plates	Three blank covers that can be replaced with wall plates as required
2	Adjustable Height Screw Holes (4)	For adjusting the height of the Inner frame

5.1.2 Mounting the Power Socket Assemblies

To mount the power socket, place the power socket under the frame in its appropriate place and tighten with the two screws (supplied).

Power socket kits come with assembly instructions.

5.2 Installing the Inner Frame

To install the inner frame:

1. Place the inner frame inside the **TBUS-3** enclosure.
2. Set the required height using your fingers to bring the inner frame to the desired position, screw and tighten it in place using the height adjustment screws (supplied with the inner frame).

Inner frame kits come with assembly instructions.

5.3 Cutting an Opening in the Table

To cut an opening in the table:

1. Place the included cut out template (that is included with your **TBUS-3**) on the surface of the table exactly where you want to install the **TBUS-3**.
2. Attach the template to the table with the included screws (if using the cut out template).
3. Following the **inside** edge of the template, cut a hole in the table surface with a sabre or keyhole saw according to the dimensions shown in Figure 4 (not to scale).

The thickness of the table should be 76.2mm / 3 inches or less.

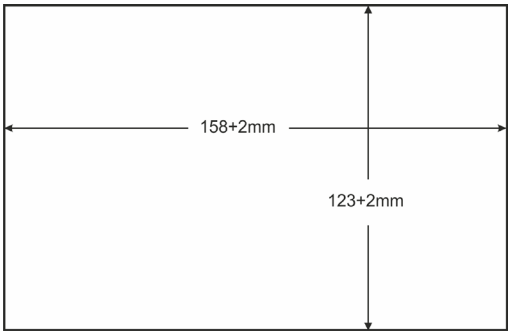


Figure 4: Cut out Dimensions

4. Unscrew and remove the template from the surface of the table and clean the table surface.
   Take care not to damage the table.
   If needed, you can download a full-scale template from our Web site.

Kramer Electronics is not responsible for any damage caused to the table.

5.4 Inserting the TBUS-3 through the Cut Out Opening

To install **TBUS-3** in the opening:

1. Remove the protective rubber guard from around the outer rim of the **TBUS-3** housing. **Beware of the sharp edge!**
2. Carefully insert the unit into the prepared opening (see Figure 5).
3. Take the support brackets under the table and place them into the support bracket grooves on both sides of the unit (see Figure 2, item 7).
4. Verify proper alignment of the unit before tightening the mounting screws.
5. Screw both mounting butterfly screws upward until they reach the table surface (from underneath). Tighten firmly (see Figure 5).
6. Screw the locking butterfly screws downward until tight against the mounting bracket.

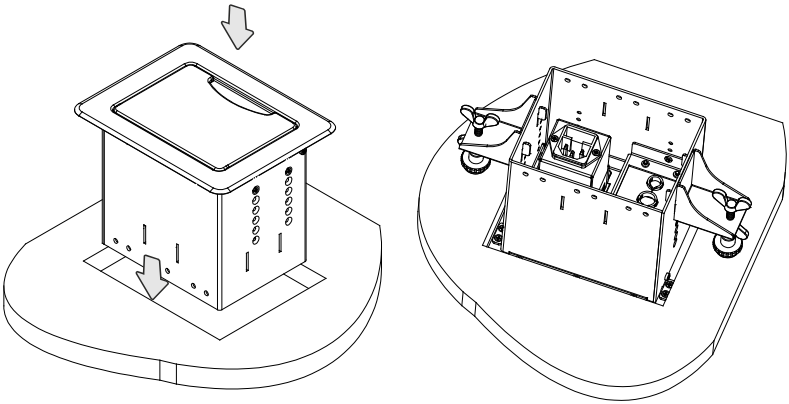


Figure 5: Inserting TBUS-3 into the Prepared Opening

5.5 Connecting Cables via the 4-cable Pass-through Insert

Inner frames that feature the 4-cable pass-through insert (for example, TBUS-3/IF/1XPS + CABLES and TBUS-3/IF/INSERTS + CABLES, shown in Section 4.2), let you pass cables from beneath the table to several laptops.
To insert the pass-through cables do the following:

1. Remove the four screws attaching the split pass-through bracket.
2. Remove the split grommet(s).
   The split grommets are not shown in Figure 6
3. Insert the cable(s) through the rectangular opening.
4. Open the split grommet slightly and insert the required cables.
5. Place the split bracket around the grommet and position this assembly over the inner frame.
6. Place the four screws appropriately and tighten the split bracket together with the grommet and inserted cables to the inner frame.
7. Insert the self-locking ties through the tie holes to secure the cables to the inside walls of the enclosure.

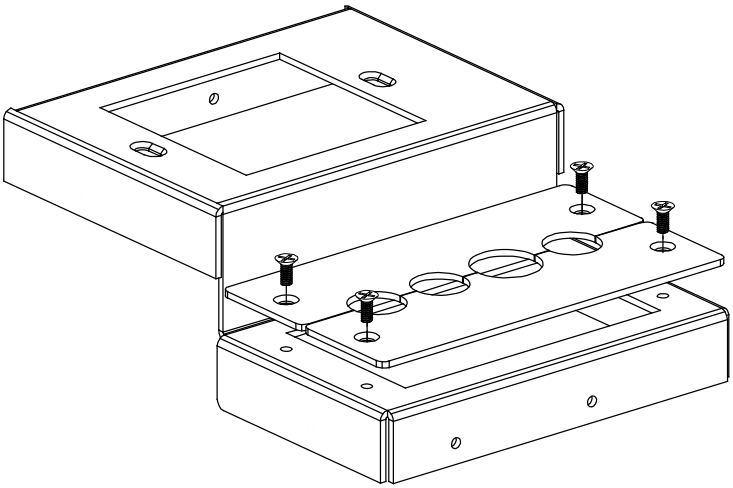


Figure 6: 4-cable Pass-through Insert (P/N: 80-003199)

5.6 Connecting the Pass-through Cables

When replacing a blank insert with the pass-through insert, for example, to connect a laptop, do the following:

1. Remove the two screws attaching the split pass-through bracket.
2. Remove the split grommet.
3. Insert the cable through the rectangular opening.
4. Open the split grommet slightly and insert the required cables.
5. Place the split bracket around the grommet and position this assembly over the Inner Frame.
6. Place the two screws appropriately and tighten the split bracket together with the grommet and inserted cables to the inner frame.
7. Insert the self-locking ties through the tie holes to secure the cables to the inside walls of the enclosure.

5.7 Connecting the Cables

When replacing blank inserts with connector inserts (for example, VGA, audio, HDMI and so on), or connecting the **TBUS-3/IF/1XPS** (P/N: 80-002999) inner frame:

1. Insert the cables to their appropriate connectors from underneath.
2. Secure the cables to the tie holes using the included self-locking ties.
   Do not secure the cables too tightly or too loosely. Leave a small amount of slack.

After the **TBUS-3** is connected to mains power and the proper cables, it is ready for use.

5.8 Adjusting the Height of the Inner frame

If needed, you can adjust the inner frame to one of four possible heights to accommodate large or bulky cables. To adjust, perform the following:

1. Remove the eight height adjustment screws (two screws on the front and back, two screws on each side, as shown in Figure 2), while supporting the surface from underneath with your fingers.

2. Raise or lower the inner frame to the required height, insert the screws, and tighten them in place.

6 Using the TBUS-3

Once the **TBUS-3** is installed, you can easily customize it to suit your own requirements by plugging in the required A/V equipment, as illustrated in the example in Figure 7.

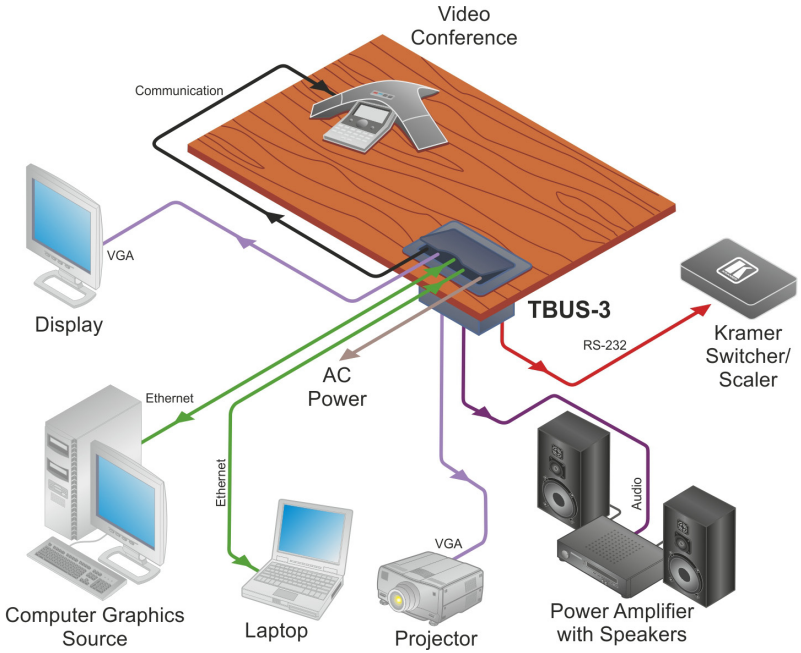


Figure 7: TBUS-3 Boardroom Installation

7 Technical Specifications of the Assembled TBUS-3

<table>
<tr><td rowspan="11">POWER SOURCE
(AC power limits):</td><td colspan="2">Power Socket Assemblies</td></tr>
<tr><td>Universal</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td colspan="2">Fully compatible with power plugs in the UK, India, Italy and Denmark, as well as with the 2-prong Europlug.
Partially compatible (if the polarity is reversed) with plugs in China, Switzerland, Israel and the USA. The universal socket does not supply grounding to plugs in Central Europe and France (you should order country specific sockets instead).
Not compatible with South African plugs.</td></tr>
<tr><td>USA</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>Germany and EU</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>Belgium and France</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>Italy</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>Australia</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>Legrand manufactured sockets for various countries (Mosaic Series)</td><td>100-240V AC, 50/60Hz, 5A
Maximum 5A per power outlet</td></tr>
<tr><td>FUSE RATING:</td><td colspan="2">T 6.3A 250V</td></tr>
<tr><td>OPERATING TEMPERATURE RANGE:</td><td colspan="2">+5 to +45 Deg. Centigrade</td></tr>
<tr><td>OPERATING HUMIDITY RANGE:</td><td colspan="2">10 to 90% RHL, non-condensing</td></tr>
<tr><td>STORAGE TEMPERATURE RANGE:</td><td colspan="2">-20 to +70Deg. C.</td></tr>
<tr><td>STORAGE HUMIDITY RANGE:</td><td colspan="2">5 to 95% RHL, non-condensing</td></tr>
<tr><td>DIMENSIONS:</td><td colspan="2">Top plate: 176mm x 140.4mm (6.9" x 5.5") W, D
Enclosure: 136mm x 102mm x 130mm (5.4" x 4.0" x 5.1") W, D, H</td></tr>
<tr><td>WEIGHT:</td><td colspan="2">TBUS-3: 0.8kg (1.76lbs) approx.
Table clamps: 0.26kg (0.57lbs)
Template: 0.12kg (0.27lbs)</td></tr>
<tr><td>ACCESSORIES:</td><td colspan="2">Power cord, six self-locking ties, template, template screws</td></tr>
<tr><td>OPTIONS:</td><td colspan="2">Inner frames, passive wall plates and interfaces, power socket kits, power cord</td></tr>
<tr><td colspan="3">Specifications are subject to change without notice at http://www.kramerelectronics.com</td></tr>
</table>

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081: "Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47: FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

  * FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com

SAFETY WARNING
Disconnect the unit from the power supply before opening and servicing